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**REMARKS****Amendments**

Claim 1 has been amended to recite that the charge control adjuvant that is an acid or a base is added as an ingredient separate from the toner particles. Additionally, the action of depletion of the negatively charged toner particles during the printing operation, as opposed to all of the liquid toner composition, is clarified. Antecedent basis for the amendment related to provision of the charge control adjuvant as an ingredient separate from the toner particles is located throughout the specification, particularly at page 8, line 29 to page 9, line 1 and lines 9-22, where the operation of the charge control adjuvant by coordination with counterions at large in the toner composition is posited, and where having a charge control adjuvant having limited solubility in the toner composition being in contact with the toner compositions is discussed. Additionally, the separate addition of the charge control adjuvant as an ingredient separate from the toner particles is demonstrated in the examples, where control liquid toner compositions are first prepared, and the charge control adjuvant is simply added to the already prepared control liquid toner compositions. The action of depletion of the negatively charged toner particles during the printing operation is described at page 11, lines 9-10.

These amendments are presented to address objections newly raised in the Final Office Action to claims as amended in response to the first Office Action. These amendments therefore could not have been earlier presented, and are timely. It is respectfully submitted that the present amendments do not raise new matter, and place the application in immediate condition for allowance. Entry and favorable consideration of these amendments is therefore earnestly solicited.

**Interview Summary**

The Examiner is thanked for courtesies extended in granting a telephone interview in the above captioned application held December 15, 2005. In this interview, the proposed amendment and distinctions of the invention in view of the prior art were discussed.

**Claim Rejections – 35 USC § 112**

Claims 1-20 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The claims have been rejected to as being unclear as to "toner" being depleted, and also being unclear as to which printing operation is to be carried out in the claims.

The claims have been amended to clarify that it is the toner particles that are depleted from the toner composition. It is respectfully submitted that this rejection has been obviated. Additionally, because the nature of that which is being removed from the toner composition has been clarified, the printing operation also is clarified because the printing operation relates to any operation in which a liquid toner composition is depleted of toner particles.

Reconsideration and withdrawal of the outstanding rejections is therefore requested.

#### **Claim Rejections – 35 USC § 102**

Claims 1-3, 6, 10-15, 17, 18, and 20 have been rejected under 35 U.S.C. 102(b) as being anticipated by deGraft-Johnson et al. in U.S. Patent 5,232,811.

DeGraft-Johnson discloses a liquid toner composition comprising a carrier liquid, a dyed latex, a charge director, and mineral oil. DeGraft-Johnson does not teach or suggest the use of a charge control adjuvant that is an acid or a base added as an ingredient separate from the toner particles and present in an amount effective to reduce the bulk conductivity of the liquid toner composition as the negatively charged toner particles are depleted during printing operations as presently claimed.

Because an element of the present claims is not disclosed in deGraft-Johnson, it is respectfully submitted that the present claims are not anticipated by the cited reference.

#### **Claim Rejections – 35 USC § 103**

Claims 1, 6-10, 14, and 16-20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kosel in U.S. Patent 3,753,760 in view of Gibson in U.S. Patent 4,891,286 or Almog in U.S. Patent 5,792,584.

The present invention describes providing an element to the toner composition in addition to the charge director (i.e. in addition to the component that provides a charge to the particle). This additional element is not present to charge the particle, but instead is present to provide exceptional charge control benefits to the toner composition. It has surprisingly been found that by addition of acid or base components to negatively charged toner particles as described in the

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present specification, bulk conductivity and preferably charge per mass are reduced during printing operations, providing superior imaging performance.

Kosel discloses liquid toners prepared using amphipathic copolymers. Kosel does disclose the use of charge directors (in particular, metal soaps), as is conventional in the toner art. Kosel does not teach or suggest the use of an additional element in the toner composition that is an acid or a base added as an ingredient separate from the toner particles and present in an amount effective to reduce the bulk conductivity of the liquid toner composition as the negatively charged toner particles are depleted during printing operations as presently claimed.

Gibson discloses liquid toner dispersions in high-speed electrophotography wherein pigment charge homogeneity and mobility are stated to be improved by the addition of effective carrier liquid-insoluble monomeric organic acids to the toner solution. Gibson only discloses addition of acids to the negatively charged toner particles, and further this acid is added in the toner manufacturing process to the toner composition prior to addition of the conventional soy lecithin charge director. See column 7, lines 19 and 25. Thus, the organic acid as described in Gibson clearly is provided as an auxiliary charge director to increase the homogeneity and mobility of the charge of each particle, and is not present in an amount to effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations.

Almog describes liquid toner compositions containing charge directors and in which the electrical properties of the charge directors are stabilized. The liquid compositions comprise (1) liquid hydrocarbon compatible with liquid toners for electrostatic imaging, (2) at least one charge director, and (3) at least one stabilizing component in an amount effective to stabilize the electrical properties of the at least one charge director, the stabilizing component being selected from solubilizable acids. These components are mixed with pigmented thermoplastic resin particles, and further liquid hydrocarbon such that the pigmented thermoplastic resin particles are micro-dispersed in the toner composition. See the Abstract. Thus, as in Gibson above, the stabilizing component acid is provided under processing conditions such that the stabilizing component acts as an auxiliary charge director to stabilize the unstable negative charge directors under high voltage conditions (see column 2, lines 20-21), and is not present in an amount to effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations. Note, for example, that under ordinary printing conditions (i.e., not under high voltage conditions), "Print quality was equal to that of toner without the additives." Column 5, lines 23-24.

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The above references thus individually and in combination fail teach the use of an acid or a base added as an ingredient separate from the toner particles and present in an amount effective to reduce the bulk conductivity of the liquid toner composition as the negatively charged toner particles are depleted during printing operations as presently claimed.

Claims 1-5, 10-13, and 16-20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kosel in U.S. Patent 3,753,760 in view of *Handbook of Imaging Materials* to Diamond & Weiss (eds.) New York: Marcel-Dekker, Inc. (11/2001) pps. 242-247, 254-257.

Kosel discloses liquid toners prepared using amphipathic copolymers. Kosel does disclose the use of charge directors (in particular, metal soaps), as is conventional in the toner art. Kosel does not teach or suggest the use of an acid or a base added as an ingredient separate from the toner particles and present in an amount effective to reduce the bulk conductivity of the liquid toner composition as the negatively charged toner particles are depleted during printing operations as presently claimed.

Diamond and Weiss is a handbook that teaches the use of conventional materials for liquid toners, including the use of charge directors. This reference thus clearly describes only the use of a charge director to impart a charge on the particle, and does not teach or suggest the use of an element in addition to a charge director that is a charge control adjuvant that is an acid or a base present in an amount effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations.

Thus, even in combination, the Kosel and the Diamond and Weiss references both teach the use of charge directors to impart a charge to toner particles, and individually and in combination fail teach the use of an acid or a base added as an ingredient separate from the toner particles and present in an amount effective to reduce the bulk conductivity of the liquid toner composition as the negatively charged toner particles are depleted during printing operations as presently claimed.

Claims 1-5, 10-13, and 16-20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Qian et al. in U.S. Patent Application Publication 2004/0091807 or Qian et al. in U.S. Patent Application 2004/0091809 in view of *Handbook of Imaging Materials* to Diamond & Weiss (eds.) New York: Marcel-Dekker, Inc. 11/2001) pp. 242-247, 254-257.

Each of the Qian references describes liquid toner compositions comprising particles made incorporating amphipathic copolymers. The copolymers of Qian '807 comprise soluble

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high Tg monomers, the copolymers of Qian '808 comprise crystallizable moieties, and the copolymers of Qian '809 have a Tg greater than 55°C at the D material portion thereof. These toner compositions use conventional charge director chemistry as discussed above, and, as acknowledged in the Office Action, do not use a distinctly separate charge control adjuvant that is an acid or a base present in an amount effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations.

As discussed above, the Diamond and Weiss handbook teaches only the use of conventional materials for liquid toners, including the use of charge directors. This reference does not teach or suggest the use of an element in addition to a charge director that is a charge control adjuvant that is an acid or a base present in an amount effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations.

Because none of the above cited references teach or suggest the concept of a charge control adjuvant that is an acid or a base in a liquid toner composition in an amount effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations, the combination of these references do not render the present claims obvious.

Claims 1-5, 10-13, and 16-20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Morrison et al. in U.S. Patent Application Publication 2003/0134940 in view of *Handbook of Imaging Materials* to Diamond & Weiss (eds.) New York: Marcel-Dekker, Inc. (11/2001) pp. 242-247, 254-257.

As noted in the first Office Action, Morrison discloses a liquid ink for electrophotographic development containing a carrier, a graft copolymer, a positive and negative charge director and a colorant. Morrison does not disclose the incorporation of an element in addition to a charge director that is a charge control adjuvant that is an acid or a base present in an amount effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations, as required in the instant claims.

As discussed above, the Diamond and Weiss handbook teaches only the use of conventional materials for liquid toners, including the use of charge directors. This reference does not teach or suggest the use of an element in addition to a charge director that is a charge control adjuvant that is an acid or a base present in an amount effective to reduce the bulk

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conductivity of the liquid toner composition as toner particles are depleted during printing operations.

Because neither of the above cited references teach or suggest the concept of a charge control adjuvant that is an acid or a base in a liquid toner composition in an amount effective to reduce the bulk conductivity of the liquid toner composition as toner particles are depleted during printing operations, the combination of these references does not render the present claims obvious.

#### Supplemental Information Disclosure Statement

Finally, Applicants wish to note that a Supplemental Information Disclosure Statement ("SIDS") was recently filed in the present application, which cites art that was recently cited in a foreign patent office. In the event that the SIDS is not yet available to the Examiner, a copy is attached hereto for efficient consideration by the Examiner at this time. Note that among the cited art is Korean patent literature: Korean document number 1999-63760 dated 26/07/1999 to Baker, et al, which is the Korean counterpart to WO 97/12285 and Korean document number 10-190747, dated 21/01/1999 to Elmasry, which is the Korean counterpart to US 5,066,559.

It is respectfully submitted that the present claims are patentable thereover.

#### CONCLUSION

In view of the above remarks, it is respectfully submitted that the foregoing is fully responsive to the outstanding Office action. In the event that a phone conference between the Examiner and the Applicant's undersigned attorney would help resolve any issues in the application, the Examiner is invited to contact said attorney at (651) 275-9811.

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DAB:21535

Respectfully Submitted,

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